

BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

2004 REGIONAL TRANSPORTATION PLAN AMENDMENT

August 11, 2005

The Boston Region Metropolitan Planning Organization (MPO) made several changes to the 2004 Regional Transportation Plan (Plan), its long-range planning document that revised construction time frames for several projects included in the 2006–2010 Transportation Improvement Program (TIP). The changes were incorporated in two components of the Plan and were adopted by the MPO on August 11, 2005:

- Table 5-3 of the original Plan showing the Regionally Significant Highway Projects in the Plan. Changes were made to the funding in 2004 to 2010 and to timeframes of projects.
- The Air Quality chapter which shows conformity to the State Implementation Plan

The financial information for the years 2004-2010 was updated based on 2004-2010 Federal Regional Targets estimated by the Executive Office of Transportation. These targets were received in Spring 2005.

The projects included in the Plan remain the same, however the construction time frames for several projects have changed. Therefore the air quality conformity analysis was revised. The changes to the air quality analyses years are as follows:

- Middlesex Turnpike in Bedford & Burlington – removed from analysis year 2007, included in 2010, 2015, and 2025
- Route 2/Crosby's Corner in Concord & Lincoln – removed from analysis year 2007, included in 2010, 2015, and 2025
- Route 18 in Weymouth – removed from analysis year 2007, included in 2010, 2015, and 2025
- Telecom City Boulevard in Everett, Malden, & Medford – removed from analysis years 2007 and 2010, included 2015 and 2025
- Route 53 in Hanover – added to analysis years 2007, 2010, and 2015
- Burgin Parkway in Quincy – added to analysis years 2007, 2010, and 2015

**Table 5-3
Regionally Significant Highway Projects in the Recommended Plan**

Ongoing No-Build Projects	Current Cost	2004-2009	2010-2015	2016-2025	Total
Route 128 Additional Lanes (Randolph to Wellesley) ^{1,2}	\$235,000,000	\$165,400,000	\$56,000,000	\$0	\$221,400,000
Plan Update Recommended Projects	Current Cost	2004-2009	2010-2015	2016-2025	Total
Crosby Drive (Bedford)	\$3,420,000	\$3,420,000	\$0	\$0	\$3,420,000
Middlesex Turnpike (Bedford & Burlington) ²	\$13,600,000	\$13,600,000	\$0	\$0	\$13,600,000
Rte. 128 Capacity Improvements (Beverly to Peabody)	\$60,000,000	\$0	\$0	\$60,000,000	\$60,000,000
East Boston Haul Road (Chelsea Truck Route) (Boston)	\$12,000,000	\$0	\$12,000,000	\$0	\$12,000,000
Route 1A/Boardman Street Grade Separation (Boston)	\$8,500,000	\$0	\$8,500,000	\$0	\$8,500,000
Rutherford Avenue (Boston)	\$67,800,000	\$0	\$26,000,000	\$41,800,000	\$67,800,000
Double Stack Initiative (Boston to Newton) ³	\$20,000,000	\$20,000,000	\$0	\$0	\$20,000,000
I-93/I-95 Interchange (Canton)	\$27,500,000	\$0	\$27,500,000	\$0	\$27,500,000
I-95 (NB)/Dedham Street Ramp (Canton)	\$3,000,000	\$0	\$3,000,000	\$0	\$3,000,000
Concord Rotary (Concord)	\$15,000,000	\$0	\$0	\$15,000,000	\$15,000,000
Route 2/Crosby's Corner (Concord and Lincoln) ²	\$19,700,000	\$19,700,000	\$0	\$0	\$19,700,000
Route 1/114 Corridor Improvements (Danvers & Peabody) ²	\$35,000,000	\$0	\$0	\$35,000,000	\$35,000,000
Telecom City Boulevard (Everett, Malden & Medford) ¹	\$11,240,000	\$0	\$11,240,000	\$0	\$11,240,000
Revere Beach Parkway (Everett & Medford)	\$80,000,000	\$0	\$0	\$80,000,000	\$80,000,000
Route 126/135 Grade Separation (Framingham)	\$50,000,000	\$0	\$0	\$50,000,000	\$50,000,000
Rte. 9/Rte. 126 Interchange (Framingham)	\$15,000,000	\$0	\$15,000,000	\$0	\$15,000,000
Double Stack Initiative (Framingham to Worcester) ³	\$8,000,000	\$8,000,000	\$0	\$0	\$8,000,000
Route 53 (Hanover) ¹	\$4,000,000	\$4,000,000	\$0	\$0	\$4,000,000
Route 53/228 (Hingham and Norwell)	\$3,000,000	\$3,000,000	\$0	\$0	\$3,000,000
Rte. 128 Capacity Improvements (Lynnfield to Reading)	\$50,000,000	\$0	\$0	\$50,000,000	\$50,000,000
Route 1 Improvements (Malden & Revere)	\$33,600,000	\$0	\$0	\$33,600,000	\$33,600,000
I-495/I-290/Route 85 Interchange (Marlborough)	\$28,000,000	\$0	\$0	\$28,000,000	\$28,000,000
Double Stack Initiative (Natick & Wellesley) ³	\$20,000,000	\$20,000,000	\$0	\$0	\$20,000,000
Needham Street/Highland Avenue (Newton & Needham) ²	\$3,850,000	\$0	\$0	\$3,850,000	\$3,850,000
Burgin Parkway (Quincy) ¹	\$18,000,000	\$18,000,000	\$0	\$0	\$18,000,000
Quincy Center Concourse, Phase 2 (Quincy) ²	\$4,500,000	\$0	\$4,500,000	\$0	\$4,500,000
I-93/I-95 Initiative (Reading & Woburn)	\$25,000,000	\$0	\$0	\$25,000,000	\$25,000,000
Mahoney Circle Grade Separation (Revere)	\$25,000,000	\$0	\$0	\$25,000,000	\$25,000,000
Route 1/Route 16 Interchange (Revere)	\$3,900,000	\$0	\$3,900,000	\$0	\$3,900,000
Route 1A/Route 16 Connection (Revere)	\$39,600,000	\$0	\$0	\$39,600,000	\$39,600,000
Boston Street (Salem)	\$2,000,000	\$0	\$2,000,000	\$0	\$2,000,000
Bridge Street (Salem)	\$3,000,000	\$0	\$3,000,000	\$0	\$3,000,000
I-93/Mystic Avenue Interchange (Somerville) ²	\$55,000,000	\$0	\$0	\$55,000,000	\$55,000,000
Naval Air Station Access Improvements (Weymouth)	\$74,700,000	\$0	\$36,400,000	\$38,300,000	\$74,700,000
Route 18 (Weymouth) ²	\$14,000,000	\$14,000,000	\$0	\$0	\$14,000,000
Route 3 South Additional Lanes (Weymouth to Duxbury)	\$180,000,000	\$0	\$79,200,000	\$100,800,000	\$180,000,000
I-93/Ballardvale Street Interchange (Wilmington)	\$15,000,000	\$1,700,000	\$0	\$13,300,000	\$15,000,000
I-93/Route 129 Interchange (Wilmington)	\$15,000,000	\$0	\$15,000,000	\$0	\$15,000,000
New Boston Street Bridge (Woburn)	\$2,000,000	\$0	\$0	\$2,000,000	\$2,000,000
Subtotal Proposed Build Scenario	\$1,068,910,000	\$125,420,000	\$247,240,000	\$696,250,000	\$1,068,910,000
20% Contingency			\$49,448,000	\$139,250,000	\$188,698,000
Total RTP Expansion (No-Build + Build + Contingency)	\$1,303,910,000	\$290,820,000	\$352,688,000	\$835,500,000	\$1,479,008,000
RTP 30% Expansion Target⁴		\$269,000,000	\$353,000,000	\$874,000,000	\$1,496,000,000
Assumed Funding under the Seaport Bond Bill		\$48,000,000	\$0	\$0	\$48,000,000
Surplus/Deficit		\$26,180,000	\$312,000	\$38,500,000	\$64,992,000

¹ Project's timeframe changed based on programming in the 2006-2010 Transportation Improvement Program

² Revisions based current cost estimates June 2005

³ Projects expected by the MPO to be funded under the Seaport Bond Bill

⁴ Highway revenues are updated based on fiscal years 2004-2010 Federal Regional Targets estimated by the Executive Office of Transportation with consultation of the Massachusetts Association of Regional Planning Agencies dated April 12, 2005 including statewide items, non-federal aid, discretionary programs, and earmarked funds.

BOSTON REGION MPO

2004 REGIONAL TRANSPORTATION PLAN
AND
2006–2010 TRANSPORTATION IMPROVEMENT PROGRAM
AIR QUALITY CONFORMITY DETERMINATION

INTRODUCTION

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment areas to perform air quality conformity determinations prior to the approval of Transportation Plans and Transportation Improvement Programs, and at such other times as required by regulation. A nonattainment area is one that the United States Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement of performing a conformity determination ensures that federal approval and funding go to those transportation activities that are consistent with air quality goals.

Due to changes to the National Ambient Air Quality Standards (NAAQS) for ground-level ozone, and since Massachusetts has been found to be in nonattainment for those standards, a determination of conformity on the 2004 Regional Transportation Plan (Transportation Plan) was required to be completed and approved by June 15, 2005, as required by federal regulations (40 CFR Part 93) and the Massachusetts Conformity Regulations (310 CMR 60.03). The Federal Highway Administration (FHWA) approved that determination on June 15, 2005. A second conformity determination is now being conducted on the 2004 Transportation Plan to revise construction time frames for several projects that have been included in the 2006–2010 Transportation Improvement Program (TIP). Information and analyses in this document include regulatory framework, conformity requirements, planning assumptions, mobile source emissions budgets, and conformity consultation procedures.

Legislative Background

The 1970 Clean Air Act defined a 1-hour NAAQS for ground-level ozone. The 1-hour ozone standard is 0.12 parts per million, averaged at each monitor over one hour and not to be exceeded more than once per year. Hourly values are determined by readings recorded at air quality monitors located throughout the state. The 1990 CAAA further classified degrees of nonattainment of the 1-hour standard based on the severity of the monitored levels of the pollutant. The entire Commonwealth of Massachusetts was classified as serious nonattainment for the 1-hour ozone standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new 8-hour ozone standard that replaced the 1-hour standard effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004. The 8-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the 8-hour values. Massachusetts as a whole was classified as moderate nonattainment for the 8-hour standard, but separated into two nonattainment areas – Eastern MA. and Western MA.

The Eastern Massachusetts nonattainment area includes all of Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Suffolk, and Worcester counties. With this nonattainment classification, the CAAA require the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation, to achieve attainment of the 8-hour ozone standard by 2009 and beyond.

In addition, on April 1, 1996, the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville were classified as in attainment for carbon monoxide (CO). An air quality conformity analysis must still be completed in these communities, as they have a carbon monoxide maintenance plan approved as part of the SIP. The year-2010 CO motor vehicle emission budget established for the Boston CO attainment area with a maintenance plan is 228.33 tons of CO per winter day.

As of April 22, 2002, the community of Waltham was redesignated as in attainment for CO with an EPA-approved limited maintenance plan. In areas with approved limited maintenance plans, federal actions requiring conformity determinations under the transportation conformity rule are considered to satisfy the “budget test” (as budgets are treated as not constraining in these areas for the length of the initial maintenance period). Any future required “project-level” conformity determinations for projects located within this community will continue to use a “hot-spot” analysis to ensure that any new transportation projects in this CO attainment area do not cause or contribute to CO nonattainment.

On September 6, 2002, the Massachusetts Department of Environmental Protection (DEP) submitted to the EPA a revision to the Massachusetts SIP that included a revised one-hour ozone attainment demonstration for eastern Massachusetts. This SIP revision included a 2007 mobile source emission budget for VOC and NOx emissions in the eastern Massachusetts Ozone Nonattainment Area. EPA found the 1-hour budget adequate for conformity purposes on December 6, 2002. With the adoption of the new 8-hour ozone standard, DEP is required to submit an 8-hour budget for attainment of this new standard by 2007. However, a new conformity determination was required to be performed on the existing transportation plan and transportation improvement program within one year of the adoption of a new standard. Therefore, EPA determined that the Boston Region MPO must show conformity with the 1-

hour budget adopted in September 2002. The Boston Region MPO is again using the 1-hour budget for this conformity determination.

Conformity Regulations

Designated MPOs are required to perform conformity determinations by ozone nonattainment area for their Transportation Plans and TIPs. Section 176 of the CAAA defines conformity to a State Implementation Plan to mean conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of the standards. The Boston Region MPO must certify with regard to the activities outlined in the Transportation Plan and TIP that:

- none will cause or contribute to any new violation of any standard in any area;
- none will increase the frequency or severity of any existing violation of any standard in any area; and
- none will delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The EPA issued final conformity regulations in the November 24, 1993, Federal Register and DEP issued new conformity regulations effective December 30, 1994. They set forth requirements for determining conformity of Transportation Plans, TIPs, and individual projects. The federal conformity regulations were amended on August 15, 1997. The components of the required conformity analysis are listed below and explained in detail subsequently.

Conformity Criteria

- Horizon years
- Latest planning assumptions
- Latest emission model used
- Timely implementation of transportation control measures (TCMs)
- Conformity in accordance with the consultation procedures and SIP revisions
- Public participation procedures
- Financially constrained document

Procedures for Determining Regional Transportation Emissions

The Conformity Test

- Consistent with emission budgets set forth in SIP
- Contributes to reductions in CO nonattainment areas

This conformity determination will show the consistency of the Transportation Plan and TIP with the 2007 mobile source emission budget for VOC and NO_x in the Eastern Massachusetts Ozone Nonattainment Area and with the CO emission budget for the Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville maintenance area.

CONFORMITY DETERMINATION CRITERIA

This conformity determination has been prepared in accordance with 40 CFR Part 93, Transportation Conformity Rule Amendments: Flexibility and Streamlining: Final Rule. It shows that the Transportation Plan and TIP have been prepared following all the guidelines and requirements of the rule.

Horizon Year Requirements

The horizon years for regional model analysis have been established following 40 CFR 93.106(a) of the Federal Conformity Regulations. The years for which emissions are calculated are shown below.

- 2000 – Milestone Year: This year is currently being used as the new base year for calculation of emission reductions of VOCs and NO_x
- 2005 – Analysis Year for CO in the Boston nonattainment area
- 2007 – Milestone Year
- 2010 – Milestone Year – To show conformity with the ozone budget in eastern MA. and the CO budget in the Boston nonattainment area
- 2015 – Analysis Year
- 2025 – Horizon Year – Last forecast year of Regional Transportation Plan

Latest Planning Assumptions

Section 93.110 of the Federal Conformity Regulations outlines the requirements for the most recent planning assumptions that must be in place at the time of the conformity determination. Assumptions must be derived from the estimates of current and future population, households, employment, travel, and congestion most recently developed by the MPO. Analysis for the Transportation Plan and TIP are based on U.S. census data and information obtained from the Metropolitan Area Planning Council, MassHighway, and other sources. The following is a list of the sources of data used for model calibration in this analysis:

- **Population, households, and household size:** Summary File 1 Data for Massachusetts from the 2000 U.S. Census of Population and Housing.
- **Employment:** Town-level total employment from Massachusetts Department of Employment and Training, “Employment and Wages in Massachusetts’ Cities and Towns 1991– 2000,” September 2001. Estimates of employment below town level from factors based upon the Regional Planning Study Site-Level Employment Database.
- **Population forecasts:** Metropolitan Area Planning Council, Population Forecasts, March 2003.

- **Household forecasts:** Metropolitan Area Planning Council population forecasts, March 2003.
- **Employment forecasts:** Metropolitan Area Planning Council population forecasts, March 2003.
- **Vehicle ownership:** Summary File 3 data for Massachusetts from the 2000 U.S. Census of Population and Housing.
- **Traffic volumes:** Massachusetts Highway Department, “2003 Traffic Volumes for the Commonwealth of Massachusetts” (contains data from 1992–2003), June 2004. Additional traffic counts taken by MassHighway and the Central Transportation Planning Staff.
- **Project-level data:** Obtained from the responsible implementing agency.

Transit Operating Policy Assumptions

The transit service assumptions used in ridership modeling of the Transportation Plan were based on 2003 MBTA service. The model calibration was performed using the following:

- “Ridership and Service Statistics,” Eighth Edition, MBTA, 2002.
- The Central Artery/Third Harbor Tunnel Regional Transit Mitigation Program, as outlined in agreements between the Massachusetts DEP and Executive Office of Transportation (EOT).

The operating policies and assumed transit ridership have not changed since the conformity determination prepared for the 2004–2025 Regional Transportation Plan in May 2005.

Emission Inventory Assumptions

For the Regional Transportation Plan and TIP, conformity is determined in relation to the Massachusetts State Implementation Plan (SIP) mobile source emission budgets approved in December 2002 for VOC and NO_x. The VOC mobile source emission budget for 2007 for the Eastern Massachusetts Ozone Nonattainment Area has been set at 86.7 tons per summer day, and the 2007 mobile source budget for NO_x is 226.363 tons per summer day.

The Boston Region MPO VOC and NO_x emissions are included with those in the following MPO regions to show conformity with the SIP in the Eastern Massachusetts Ozone Nonattainment Area:

- Cape Cod MPO
- Central Massachusetts MPO

- Merrimack Valley MPO
- Montachusett Region MPO
- Northern Middlesex MPO
- Old Colony MPO
- Southeastern Region MPO
- Martha's Vineyard Commission*
- Nantucket Planning and Economic Development Commission*

CO emission projections have been set for the nine cities in the Boston area classified to attainment for CO. An emission attainment inventory for CO of 501.53 tons per winter day was established for all sources of CO emissions (mobile, industrial, and all other sources of CO) for the redesignation year 1993. Of that 501.53 tons, 305.43 tons per winter day was allocated for mobile sources. In addition to the attainment year inventory, the EPA required that emission projections for every five years through 2010 be developed for all sources to ensure that the combination of all CO emissions will not exceed the 501.53 tons per winter day total in the future. The mobile source emission projection of 228.33 tons per winter day has been set for 2010. Emissions from the nine towns in the Boston area cannot exceed the amount in the last year of the maintenance plan (2010).

EOT's Office of Transportation Planning estimated the results for all the MPOs in the Eastern Massachusetts Ozone Nonattainment Area using a statewide travel demand model (the Boston Region MPO model results were substituted as the latest planning assumptions for the conformity analysis). The air quality analysis has been finalized for all of the MPOs, and EOT has made the final conformity determination for this ozone nonattainment area.

Latest Emission Model

Emission factors used for calculating emission changes were determined using MOBILE 6.2, the model used by DEP in determining the mobile source budget. Emission factors for motor vehicles are specific to each model year, pollutant type, temperature, and travel speed. MOBILE 6.2 requires a wide range of input parameters, including inspection and maintenance program information and other data such as anti-tampering rates, hot/cold start mix, emission failure rates, vehicle fleet mix, and fleet age distribution.

The input variables used in this conformity determination were received from DEP. The inputs used for the 2000 Base Case network were the same as those used in determining the latest Emissions Inventory for the Commonwealth of Massachusetts. The inputs used for the years 2007 through 2025 were also received from DEP and include information on programs that were submitted to the EPA in 1993, 1994, 1997, 1998, and 1999 as the control strategy for the Commonwealth to obtain ambient air quality standards for 1999 and beyond.

* These regions are considered to be MPOs for planning purposes.

Timely Implementation of Transportation Control Measures

Transportation control measures (TCMs) have been required in the SIP in revisions submitted to the EPA in 1979 and 1982 and those submitted as part of the Central Artery/Tunnel project. Those TCMs included in the 1979 and 1982 submissions have been accomplished through construction or through implementation of ongoing programs. The only exceptions are the bus immersion-heater program, the Newton Rider bus service, the private bus insurance discount concept, and the pedestrian malls in Lynn, Cambridge, and Needham. These TCMs have been substituted with other services. A list of the TCMs is provided in Appendix A. These projects have all been included in past Boston Region MPO Transportation Plans and TIPs.

TCMs that were submitted as a SIP commitment as part of the Central Artery/Tunnel mitigation are also included in Appendix A. The status of these projects has been updated using the Administrative Consent Order (ACO) signed by EOT and the Executive Office of Environmental Affairs (EOEA) in September 2000 and January 2005, and the Project Update and Schedule submitted by the MBTA to DEP in September 2004. All of the projects are in the Transportation Plan as recommended projects. They include:

- Southeast Expressway High-Occupancy- Vehicle (HOV) Lane
- HOV Lane on I-93 to Mystic Avenue
- 20,000 New Park-and-Ride Spaces
- Ipswich Commuter Rail Extension to Newburyport
- Old Colony Commuter Rail Extension
- Framingham Commuter Rail Extension to Worcester
- Green Line Extension to Medford Hillside
- Red Line/Blue Line Connector
- Arborway Restoration
- South Boston Piers Transitway

The September 2000 ACO reconciled and adjusted dates of completion for all projects required as mitigation for the Central Artery/Tunnel that were not completed to date. This conformity determination includes all projects that are part of the ACO. The two transit TCM SIP commitment projects in the ACO that have not been completed on schedule are the Greenbush Line of the Old Colony Commuter Rail Service and the Arborway Restoration project. Interim substitute projects have been submitted to DEP for these projects and are included in the Transportation Plan.

An amended ACO was signed in January 2005, which outlines revised schedules, mitigation measures, a supplemental environmental project, and financial penalties to address violations, by the transportation agency in meeting public transit commitments that are part of mitigation measures for the Central Artery/Tunnel project. All projects included in both ACOs are included in the Transportation Plan.

Reevaluation Process of SIP TCMs

As outlined in the ACOs, several SIP TCM commitments remain outstanding. The Office of Commonwealth Development (OCD), EOT, and DEP are interested in reevaluating these projects to ensure that any further transportation investments fund the best regionally significant projects that meet air quality goals and requirements.

Transportation planning and decision-making have changed significantly since adoption of these Central Artery/Tunnel SIP commitments. The agencies have embarked upon a reevaluation process for three projects — the Green Line Arborway Restoration, the Red Line/Blue Line Connection, and the Green Line Extension to Medford Hillside. The Green Line Arborway Restoration is currently in the environmental review process, while both the Red Line/Blue Line Connector and the Green Line Extension to Medford Hillside are in the initial planning stages and are scheduled for completion in December 2011.

In 2003, the Massachusetts Bay Transportation Authority (MBTA) completed a new Program for Mass Transportation (PMT). The PMT is the MBTA's long-range planning document, and the foundation for transit capital planning in eastern Massachusetts. The 2003 PMT prioritized projects within modes and by investment category. It expanded on the evaluation criteria that were used in previous PMTs and determined overall project ratings based on factors such as utilization, mobility, cost-effectiveness, air quality, service quality, economic and land-use impacts, and environmental justice. The PMT rated the Arborway Restoration, Red Line/Blue Line Connector, and Green Line to Medford Hillside projects as medium-priority rapid transit expansions. The PMT ratings suggest that these projects may no longer be the best investments for the region.

In the current Transportation Plan, the MPO used the PMT ratings to select transit projects. Despite their medium rating within the PMT, the MPO did prioritize funding for these projects because they are SIP commitments, and the Commonwealth is required to show timely implementation of the TCMs.

The Romney Administration has placed a significant emphasis on objective criteria, and this focus has been reflected within the transportation decision-making process. In 2003, EOT developed objective criteria and presented them to the Commonwealth's MPOs and the general public. The Boston Region MPO had already begun work on objective criteria and its criteria were similar to those developed for statewide use. The MPO applied those objective criteria to their 2005–2009 and 2006–2010 TIPs. The use of objective selection criteria in programming funds is an important change within the Commonwealth. The state, along with its MPOs, has adopted a more rational, transparent approach to project prioritization.

For these reasons, OCD, EOT, and DEP, along with other partners, began the process of reexamining the Red Line/Blue Line Connector, Green Line Extension to Medford Hillside, and Arborway Restoration Projects. OCD, EOT, and DEP recognize the importance of this effort, since the timely implementation of TCMs is critical for the Commonwealth to achieve air quality conformity and its air quality goals. The process

involves six steps and began in December 2004 and is estimated to be completed by December 2005. This process is shown in Appendix B.

The first step of the process included initial outreach and air quality goal setting. This process began with a public meeting sponsored by EOT and DEP on December 14, 2004 at the Gardner Auditorium of the State House on Beacon Hill. Two additional public meetings were scheduled because a number of people commented that many could not attend on December 14th because the meeting was held during the day. Public meetings were held in Jamaica Plain and Somerville subsequently.

DEP reviewed the public comments and provided an air quality budget in a letter to EOT that quantifies the air quality benefits needed to meet the Commonwealth's obligations to the SIP. Commissioner Gollidge established the air quality benefits associated with the three projects being reevaluated with an overall upward adjustment of ten percent (10%).

EOT and the Boston Region MPO are currently finishing up step two of the process. This step involved the examination of the high-priority transit projects included in the PMT and all outstanding SIP transit commitments in the Boston Region MPO area using the state's objective criteria to determine the most important regional projects. EOT presented their preferred alternative to the three projects to DEP in a letter dated May 18, 2005, and to the Boston Region MPO in meetings on May 26 and June 14, 2005. The preferred alternative includes:

- Enhanced Green Line extended beyond Lechmere to West Medford and Union Square
- Fairmount Line improvements
- 1,000 Additional parking spaces in the Boston region

The Boston Region MPO posted this information on their web site and held a public meeting on June 22, 2005 to hear comments concerning these changes. This step will be completed on June 30, 2005, as scheduled with a Boston Region MPO meeting. The next step includes DEP's consideration of regulatory changes in order to implement the proposed project changes.

Consultation Procedures

The conformity regulations require that the MPO must make a conformity determination according to consultation procedures set out in the federal and state regulations and must also follow public involvement procedures established by the MPO under federal metropolitan transportation planning regulations.

Both the state and federal regulations require that the Boston Region MPO, EOT/MassHighway, DEP, EPA – Region 1, and FHWA – Region 1 consult on the following issues:

- Selection of regional emissions analysis models, including model development and assessing project design factors for modeling

- Selection of inputs to the most recent EPA-approved emissions factor model
- Selection of CO hotspot modeling procedures, as necessary
- Identification of regionally significant projects to be included in the regional emissions analysis
- Identification of projects which have changed in design and scope
- Identification of exempt projects
- Identification of exempt projects that should be treated as non-exempt because of adverse air quality impacts
- Identification of the latest planning assumptions and determination of consistency with SIP assumptions

These issues have all been addressed through consultation among the agencies listed above.

Public Participation Procedures

Title 23 CFR Sections 450.324 and 40 CFR 90.105(e) require that the development of the Transportation Plan, TIP, and related certification documents provide an adequate opportunity for public review and comment.

Section 450.316(b) establishes the outline for MPO public participation programs. The Boston Region MPO's public participation program was formally adopted in March 2002. The development and adoption of this program conforms to the requirements of the section. It guarantees public access to the Transportation Plan and TIP and all supporting documentation, provides for public notification of the availability of the Transportation Plan and TIP and the public's right to review the document and comment thereon, and provides a public review and comment period prior to the adoption of the Transportation Plan and TIP and related certification documents by the MPO.

On June 26, 2005 a public notice was placed in the Boston Globe informing the public of its right to comment on this draft document. On August 11, 2005, the Boston Region MPO voted to approve the Transportation Plan and TIP Air Quality Conformity Determination. This allowed ample opportunity for public comment and MPO review of the draft document. These procedures comply with the associated federal requirements.

Financial Consistency

Title 23 CFR Section 450.324 and 40 CFR 93.108 require the Transportation Plan and TIP to "be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources."

This 2004 Boston Region Regional Transportation Plan and the 2006–2010 TIP are financially constrained to projections of federal and state resources reasonably expected to be available during the appropriate time frame. Projections of federal resources are based upon the estimated apportionment of the federal authorizations contained in

SAFETEA, the six-year transportation reauthorization bill filed by the administration, as allocated to the region by the state or as allocated among the various MPOs according to federal formulas or MPO agreement. Projections of state resources are based upon the allocations contained in the current Transportation Bond Bill and historic trends. Therefore, the Transportation Plan and TIP comply with federal requirements relating to financial planning.

PROCEDURES FOR DETERMINING REGIONAL TRANSPORTATION EMISSIONS

The federal conformity regulations set forth specific requirements for determining transportation emissions. The requirements and the procedures used for the Transportation Plan and TIP are summarized below.

Demographics, Employment, and Transportation Demand

Specific sources of population, households, employment, and traffic information used in the Transportation Plan and TIP have been listed above under the *Latest Planning Assumptions* section. Chapter 5 of the 2004 Transportation Plan outlines specific project recommendations that are set forth for the Boston region through 2025.

Only regionally significant projects are required to be included in the travel demand modeling efforts. The final federal conformity regulations define regionally significant as follows:

A transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sport complexes, etc., or transportation terminals as well as most terminals themselves) and would be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

A listing of projects exempt from any air quality analysis is included in Appendix C.

In addition, specific projects have been exempt from regional modeling emissions analysis. The categories of projects include:

- Intersection channelization projects
- Intersection signalization projects at individual intersections
- Interchange reconfiguration projects
- Changes in vertical and horizontal alignment
- Truck size and weight inspection stations
- Bus terminals and transfer points

Previous conformity amendments now allow traffic signal synchronization projects to be exempt from conformity determinations prior to their funding, approval, or implementation. However, once they are implemented, they must be included in conformity determinations for future Transportation Plans and TIPs.

The Build Network for this conformity determination is composed of projects proposed in the approved Transportation Improvement Programs, projects in the Transportation Plan, and projects in the MBTA capital budget. A listing of the projects that meet these criteria and are included in the 2004–2025 Regional Transportation Plan Build networks is provided in Table 1.

In addition to emissions calculated from the network model, a separate analysis was performed off-model to determine emissions from commuter rail, commuter boat, and the MBTA bus program and are shown in Appendix D.

Table 1
2004 Transportation Plan: Future Needs Analysis Build Networks

Projects	2007 Build	2010 Build	2015 Build	2025 Build
Crosby Drive (Bedford)	X	X	X	X
Middlesex Turnpike (Bedford & Burlington)		X	X	X
Rte. 128 Capacity Improvements (Beverly to Peabody)				X
East Boston Haul Road/Chelsea Truck Route (Boston)			X	X
Arborway Restoration (Boston)	X	X	X	X
100 Additional Buses to Improve Service on Existing Rtes			X	X
Red Line/Blue Line Connector (Boston)			X	X
Fairmount Line Improvements (Boston)	X	X	X	X
Route 1A/Boardman Street Grade Separation (Boston)				X
Russia Wharf Ferry Terminal (Boston)		X	X	X
Rutherford Avenue (Boston)				X
Silver Line Phase 3 (50/50) (Boston)			X	X
Old Colony/Greenbush Commuter Rail (Boston to Scituate)		X	X	X
Double Stack Initiative (Boston to Newton)		X	X	X
Green Line to Medford Hillside (Boston, Medford & Somerville)			X	X
Urban Ring Phases I & 2 (Compact Communities)				X
I-93/I-95 Interchange (Canton)			X	X
I-95 (NB)/Dedham Street Ramp (Canton)			X	X

Table 1 (cont.)

Projects	2007 Build	2010 Build	2015 Build	2025 Build
Concord Rotary (Concord)				X
Route 2/Crosby's Corner (Concord and Lincoln)		X	X	X
Route 1/114 Corridor Improvements (Danvers & Peabody)				X
Telecom City Boulevard (Everett, Malden & Medford)			X	X
Revere Beach Parkway (Everett & Medford)				X
Route 126/135 Grade Separation (Framingham)				X
Rte. 9/Rte. 126 Interchange (Framingham)			X	X
Double Stack Initiative (Framingham to Worcester)		X	X	X
Route 53 (Hanover)	X	X	X	X
Route 53/228 (Hingham and Norwell)	X	X	X	X
Rte. 128 Capacity Improvements (Lynnfield to Reading)				X
Route 1 Improvements (Malden & Revere)				X
I-495/I-290/Route 85 Interchange (Marlborough)				X
Double Stack Initiative (Natick & Wellesley)		X	X	X
Needham Street/Highland Avenue (Newton & Needham)				X
Burgin Parkway (Quincy)	X	X	X	X
Quincy Center Concourse, Phase 2 (Quincy)			X	X
I-93/I-95 Initiative (Reading & Woburn)				X
Mahoney Circle Grade Separation (Revere)			X	X
Route 1/Route 16 Interchange (Revere)			X	X
Route 1A/Route 16 Connection (Revere)				X
North Shore Transit Improvements (Revere to Salem Corridor)				X
Boston Street (Salem)			X	X
Bridge Street (Salem)			X	X
Assembly Square Orange Line Station (Somerville)			X	X
I-93/Mystic Avenue Interchange (Somerville)				X
Naval Air Station Access Improvements (Weymouth)			X	X
Route 18 (Weymouth)		X	X	X
Route 3 South Additional Lanes (Weymouth to Duxbury)				X
I-93/Ballardvale Street Interchange (Wilmington)				X
I-93/Route 129 Interchange (Wilmington)			X	X
New Boston Street Bridge (Woburn)				X

Changes in Project Design Since the Last Conformity Determination Analysis

The Commonwealth requires that any changes in project design from the previous conformity determination for the region be identified. The last conformity determination was performed on the 2004–2025 Transportation Plan in May 2005. Changes, which have occurred since the last conformity determination, are as follows:

- The mix of projects included in the Transportation Plan remains the same as that which was included in the May 2005 submission, however the construction time frames for several projects have changed. Those changes are as follows:
 - Middlesex Turnpike in Bedford & Burlington – removed from analysis year 2007, included in 2010, 2015, and 2025
 - Route 2/Crosby's Corner in Concord & Lincoln – removed from analysis year 2007, included in 2010, 2015, and 2025
 - Telecom City Boulevard in Everett, Malden, & Medford – removed from analysis years 2007 and 2010, included 2015 and 2025
 - Route 53 in Hanover – added to analysis years 2007, 2010, and 2015
 - Burgin Parkway in Quincy – added to analysis years 2007, 2010, and 2015
 - Route 18 in Weymouth – removed from analysis year 2007, included in 2010, 2015, and 2025

Model-Specific Information

40 CFR Part 93.111 outlines requirements pertaining to the network-based transportation demand models. These requirements include modeling methods and functional relationships that are to be used in accordance with accepted professional practice and are to be reasonable for purposes of emission estimation. The Boston Region MPO has used the methods described in the conformity regulations in the analysis of the Transportation Plan.

Highway Performance Monitoring System Adjustments

As stated in guidance by the EPA, all areas of serious ozone and carbon monoxide nonattainment must use the Federal Highway Administration's Highway Performance Monitoring System (HPMS) to track daily vehicle-miles of travel (VMT) prior to attainment to ensure that the state is in line with commitments made in reaching attainment of the ambient air quality standards by the required attainment dates. MassHighway provided HPMS information to DEP. DEP used this information in setting mobile source budgets for VOCs, NO_x, and CO in all SIP revisions prior to 1997. DEP has since revised its VOC and NO_x budgets using transportation demand model runs. However, the models must still be compared to HPMS data since HPMS is at present the accepted tracking procedure as outlined in the regulations.

The conformity regulations require that all model-based VMT be compared with the HPMS VMT to ensure that the region is in line with VMT and emission projections made

by DEP. An adjustment factor has been developed which compares the 2000 HPMS VMT to the 2000 transportation model VMT. This adjustment factor is then applied to all modeled VOC and NO_x emissions for years 2007 through 2025 to ensure consistency with EPA-accepted procedures.

$$\frac{\text{2000 HPMS VMT}}{\text{2000 Modeled VMT}} = \text{Adjustment factor for VOC and NO}_x$$

HPMS adjustment factors, calculated on a regional basis, are applied to model output of future scenarios, and occasionally change as base-year models are updated or improved. The latest HPMS factors for the Eastern Massachusetts Ozone Nonattainment Area are shown in Table 2.

Table 2
HPMS Adjustment Factors

REGION	2000 HPMS VMT (miles)	2000 Travel Demand Model VMT (miles)	HPMS/Model Conversion Factor
Cape Cod	6,204,000	5,303,767	1.170
Central Mass.	12,920,000	16,756,961	0.771
Martha's Vineyard	219,000	173,899	1.259
Merrimack Valley	8,920,000	9,809,870	0.909
Boston	59,139,000	79,040,650	0.748
Montachusett	5,366,000	5,723,531	0.938
Nantucket	108,000	59,786	1.806
Northern Middlesex	7,261,000	7,509,222	0.967
Old Colony	6,058,000	7,079,932	0.856
Southeastern Mass.	14,007,000	15,012,861	0.933
Eastern MA	120,202,000	146,470,479	0.821

Since the CO emission budget for the Boston CO attainment area was determined using the HPMS method rather than the transportation model, a different adjustment factor is applied to the CO emissions for the nine cities and towns. This was done by comparing the 1990 CO emissions from the nine cities and towns resulting from the 1990 base year model run to the 1990 HPMS generated CO emissions submitted as part of the SIP. The HPMS data was divided by the model data to determine the CO adjustment factor to be applied to all modeled CO emissions for future years. The CO HPMS adjustment factor is 0.71.

THE CONFORMITY TEST

Consistency with Emission Budgets Set Forth in the SIP

The Boston Region MPO has conducted an air quality analysis of the 2004–2025 Regional Transportation Plan and 2006–2010 TIP. The purpose of the analysis is to evaluate the air quality impacts of the Transportation Plan and TIP on the SIP. The analysis evaluates the change in ozone-precursor (VOCs and NO_x) emissions and carbon monoxide emissions due to implementation of the Transportation Plan and TIP. The modeling procedures and assumptions used in this air quality analysis follow the EPA's final conformity regulations issued on August 15, 1997. They are also consistent with procedures used by DEP to develop Massachusetts's "1990 Base Year Emission Inventory," "1996 Reasonable Further Progress Plan," "Post-1996 Reasonable Further Progress Plan," "1996 Rate of Progress Report," and its "Ozone Attainment Demonstration" for the SIP. All consultation procedures were followed to ensure that a complete analysis of the Transportation Plan and TIP were performed and were consistent with the SIP.

The primary test to show conformity with the SIP is to show that the air quality conformity of this Transportation Plan is consistent with the emission budgets set forth in the SIP. The Massachusetts Reasonable Further Progress Plan (RFP) was deemed complete by the EPA on June 5, 1997. The EPA determined that the 15% RFP SIP submittal contained an adequate mobile source emissions budget to conduct conformity determinations using the conformity criteria. In addition, the 2007 mobile source emission budget for eastern Massachusetts was found adequate for conformity purposes by the EPA on December 6, 2002.

The Boston Region MPO staff estimated VOC and NO_x emissions for the Boston region. On behalf of EOT, MassHighway included the Boston Region MPO emissions in the final emission totals for all areas and all MPOs. The VOC mobile source emission budget for 2007 for the Eastern Massachusetts Ozone Nonattainment Area has been set at 86.7 tons per summer day, and the 2007 mobile source budget for NO_x is 226.363 tons per summer day. As shown in Tables 3 and 4, the results of the air quality analysis demonstrate that the VOC and NO_x emissions from all build scenarios are less than the VOC and NO_x emissions budgets for the Eastern Massachusetts Ozone Nonattainment Area.

The CO mobile source attainment inventory for 1993 for the nine cities in the Boston area recently reclassified as attainment is 305.43 tons per winter day. The projection provided for mobile sources for the Boston area is 228.33 tons per winter day for 2010. The total tons per winter day of CO emissions for the nine cities in the Boston maintenance area are shown in Table 5. The CO emissions are less than the CO emission budget.

TABLE 3
VOC Emissions Estimates for the Eastern Massachusetts
Ozone Non-attainment Area
(all emissions expressed in tons per summer day)

Year	Boston Region Action Emissions	Eastern MA Action Emissions	Budget	Difference (Action – Budget)
2000	n/a	166.545	n/a	n/a
2007	43.4396	83.662	86.700	- 3.038
2010	32.9095	63.398	86.700	-23.302
2015	21.6820	42.398	86.700	- 44.302
2025	18.2318	33.438	86.700	- 53.262

TABLE 4
NOx Emissions Estimates for the Eastern Massachusetts
Ozone Non-attainment Area
(all emissions expressed in tons per summer day)

Year	Boston Region Action Emissions	Eastern MA Action Emissions	Budget	Difference (Action – Budget)
2000	n/a	287.877	n/a	n/a
2007	107.2788	225.114	226.363	- 1.249
2010	78.7143	165.246	226.363	-61.117
2015	38.0687	84.875	226.363	- 141.488
2025	17.6145	41.646	226.363	- 184.717

TABLE 5
Winter Carbon Monoxide Emissions Estimates for the CO Maintenance Area for
the Nine Cities in the Boston Area
(all emissions expressed in tons per winter day)

Year	Boston Build Emissions	Budget	Difference (Action – Budget)
2005	195.18	217.53	-22.35
2010	137.55	228.33	-90.78
2015	115.23	228.33	-113.10
2025	108.81	228.33	-119.52

CONCLUSION

The Clean Air Act Amendments of 1990 established requirements for transportation plans, programs, and projects. The EPA published a final rule in the November 24, 1993, Federal Register, which was last amended on August 15, 1997, providing procedures to be followed by the U.S. Department of Transportation in determining conformity of transportation plans, programs, and projects with the SIP for attaining air quality standards. Eastern Massachusetts has been designated “moderate” ozone nonattainment area for the 8-hour ozone standard. Federal conformity regulations require that the impact of transportation plans, programs, and projects on nonattainment areas be evaluated.

The Boston Region MPO has conducted an air quality analysis of the 2004–2025 Regional Transportation Plan and 2006–2010 TIP. The purpose of the analysis is to evaluate the air quality impacts of the Transportation Plan and TIP on the SIP. The analysis evaluates the change in ozone precursor emissions (VOCs and NO_x) and CO emissions due to the implementation of the Transportation Plan. The modeling procedures and assumptions used in this air quality analysis follow the EPA’s and the Commonwealth’s guidance and are consistent with all present and past procedures used by the Massachusetts DEP to develop and amend the SIP.

The Massachusetts EOT has found the emission levels from all areas and all MPOs in eastern Massachusetts, including emissions from the Transportation Plan and TIP, to be in conformance with the SIP according to conformity criteria. Specifically, the following conditions are met:

- The VOC emissions for the build scenarios are less than the 2007 VOC mobile source emission budget for analysis years 2007 through 2025.
- The NOx emissions for the build scenarios are less than the 2007 NOx mobile source emission budget for analysis years 2007 through 2025.
- The CO emissions for the build scenarios are less than projections for analysis years 2010 through 2025 for the nine cities in the Boston CO maintenance area.

In accordance with Section 176(c)(4) of the Clean Air Act as amended in 1990, the Boston Region MPO has completed this review and hereby certifies that its 2004–2025 Regional Transportation Plan and 2006–2010 TIP and its latest conformity determination conditionally conform with 40 CFR Part 93 and 310 CMR 60.03 and are consistent with the air quality goals in the Massachusetts State Implementation Plan.

APPENDIX A

STATUS OF TRANSPORTATION CONTROL MEASURES

APPENDIX A
STATUS OF THE 1979
STATE IMPLEMENTATION PLAN TCMs

Transportation Control Measures In the 1979 SIP	2004 Transp. Plan	Status in 2005
MBTA Plant Improvements - Green Line improvements - station modernization (Park, State, Washington - miscellaneous plant improvements	X	implemented and ongoing completed - other stations now being modernized (Blue Line) implemented and ongoing
MBTA Vehicle Fleet Improvements	X	implemented and ongoing
Commuter Rail Improvement Program	X	implemented and ongoing
MBTA Park 'n' Ride Program - Alewife, Quincy Adams, & Braintree - Forest Hills -Mishawam	X X X	complete complete complete
Reduction and Relocation of bus stops	X	implemented and ongoing
Urban Systems (TOPICS-type) Program	X	implemented and ongoing
Off-Street Parking Freeze - City of Boston		implemented and ongoing
Off-Street Parking Freeze - City of Cambridge		implemented and ongoing
Off-Street Parking Freeze - Logan Airport		implemented and ongoing
Public Information/Promotion - bus stop sign replacement - information kiosks		implemented and ongoing implemented and ongoing
Commuter Boat Service Demonstration (Hingham to Boston)	X	regular contract service ongoing
Red Line Extension from Quincy to Braintree	X	completed & opened for service in 1980
Red Line Extension from Harvard to Alewife	X	completed & opened for service in 1985
Orange Line Extension from South Cove to Forest Hills	X	completed & opened for service in 1987
Downtown Crossing Pedestrian Zone		implemented & ongoing
Boston Resident Parking Sticker Program		implemented & ongoing
Cambridge Resident Parking Sticker Program		implemented and ongoing
MDC On-Street Parking Ban		ongoing
MBTA Pass Program		implemented and ongoing
Masspool, Inc. (MassRIDES)	X	ongoing
Extension of I-93 HOV Lane to Charlestown	X	complete
MBTA Suburban Bus Program	X	ongoing
State/Local Financing Net Cost of T-Service - review of fare changes shall involve the public and consider environmental impacts		ongoing

APPENDIX A (cont.)
STATUS OF THE 1979 STATE IMPLEMENTATION PLAN TCMs

Transportation Control Measures In the 1979 SIP	2004 Transp. Plan	Status in 2005
Bicycle Racks at transit stations		ongoing
MDPW (MHD) Bikeway Program		ongoing
Variable Work Hours Program		ongoing
MBTA Idling Reduction Program		implemented and ongoing
Right-Turn on Red		implemented and ongoing
Charlestown Bus Garage		completed 1979
Bus Immersion Heater Program		discontinued, new bus purchases subject to increasingly stringent emission standards
Improved Service Delivery - priority signals, automated fare collection, scheduling and routing modifications, & passenger shelters	X	implemented and ongoing
Improved Service Evaluation		ongoing

APPENDIX A (cont.)
STATUS OF THE 1982 STATE IMPLEMENTATION PLAN TCMs

Transportation Control Measures In the 1982 SIP	2004 Transp. Plan	Status in 2005
Improved Public Transit - Downtown Private Bus Parking - Insurance Discounts for Private Bus Riders - Improved Logan Bus Service - Newton Rider Bus Service - Vehicle Replacement & Modernization		- ongoing - discounts for MBTA pass holders - ongoing - discontinued, substituted with MBTA service - completed & ongoing
Area-Wide Ridesharing Programs	X	ongoing
On-Street Parking Controls - Resident Parking Sticker Programs - Boston Tow and Hold Program - Cambridge Zoning Ordinance Change		ongoing
Pedestrian Malls - Auto Restriction Zones		ongoing in Salem, discontinued in other cities; substituted with other program.
Employer-Based Ridesharing Programs - Airport Ridesharing Program		ongoing
Road Pricing to Discourage Single-Occupant Vehicles - Mass Pike, Callahan/Sumner Carpool Incentive Program		ongoing
Interstate 93 Southbound HOV Lane	X	implemented, ongoing
Traffic Flow Improvements - Urban Systems Projects	X	ongoing
Fringe Parking/Park and Ride Lots	X	ongoing
Long -Range Public Transit Improvements - Private Carrier Bus Leasing Program		ongoing
Bicycle Facilities - Long distance bike facilities - Bicycle travel on the MBTA - Bicycle Storage Facilities		- implemented - ongoing - installed at South Acton Commuter Rail Station

APPENDIX A (cont.)
STATUS OF THE CENTRAL ARTERY
STATE IMPLEMENTATION PLAN TCMs

Central Artery Mitigation Construction Projects	2004 Transp. Plan	Status in 2005
South Station Bus Terminal	X	Opened for operations on October 28, 1995
South Station Track #12	X	Operating, effective Dec. 20, 1995
Ipswich Commuter Rail extension to Newburyport	X	Revenue service began October 1998
Framingham Commuter Rail Extension to Worcester	X	Interim service started in September, 1995 with full service in 2002.
Old Colony Commuter Rail Extension	X	Full weekday service implemented Plymouth and Middleborough Lines in December 1997. Greenbush included in ACO, substitution projects submitted to DEP. The MBTA anticipates running service by 2007.
South Boston Parking Freeze		Regulation adopted in 1993, inventory and plan is pending with DEP.
20,000 new park and ride and commuter rail station parking spaces	X	Completed – 2001
Silver Line (Washington Street Replacement – Phase I)	X	Bus rapid transit with 40-foot CNG buses began operation in July 2002. Service is now using 60 Foot CNG buses.
South Boston Piers Electric Bus Service (Phase 2)	X	Service started December 2004 with service to Logan Airport in June 2005.
Blue Line Platform lengthening and modernization	X	Seven stations have been modified for 6 car trains. Work continues on downtown stations. DEP was notified that vehicle manufacturer is unable to meet completion date, and as such, the project is delayed until 2006.

APPENDIX A (cont.)
STATUS OF THE CENTRAL ARTERY
STATE IMPLEMENTATION PLAN TCMs

Central Artery Mitigation Construction Projects	2004 Transp. Plan	Status in 2005
Alternative Fuel Buses	X	MBTA has executed purchase orders for 418 alternative fuel vehicles, 358 of which are in service.
Green Line Arborway Restoration	X	Originally anticipated to be completed by December 2006, though no firm date is established in ACO. The current CIP has \$10 million programmed for design, but no money for construction or vehicle procurement. Project currently in EOT/DEP Reevaluation Process.
Blue Line Connection from Bowdoin Station to Red Line at Charles Station	X	Scheduled completion 2011. Planning-level ridership-benefit study began in 2003. Project currently in EOT/DEP Reevaluation Process.
Green Line Extension to Medford	X	Scheduled completion 2011. Planning study to define preferred alternative began Spring 2004 with scheduled completion in 2005. Project currently in EOT/DEP Reevaluation Process.

Central Artery Mitigation Study Projects	2004 Transp. Plan	Status in 2005
I-93 Southbound HOV Lane to Mystic Avenue	X	Completed
I-93 HOV Lane from Mystic Avenue to Route 128		Further study required
I-93 (SE Expressway) HOV Lane from I-90 to Route 3	X	Opened November, 1995
Development of issues to be addressed in the Program for Mass Transportation	X	PMT adopted 1994, new PMT adopted May 2003
Toll Pricing feasibility to Logan Airport		in progress
Feasibility of toll booth on Route 1A		completed June, 1994
Feasibility of water shuttle between Boston and North Shore		completed 1991
Transit improvements study - PMT	X	New PMT adopted May 2003
Feasibility of rail connection between South Station and Logan Airport		final report issued July, 1994

**APPENDIX A (cont.)
STATUS OF THE CENTRAL ARTERY
STATE IMPLEMENTATION PLAN TCMs**

Central Artery Mitigation Study Projects	2004 Transp. Plan	Status in 2005
Expansion of size and number of Logan Express service parking and transit facilities	X	completed June, 1994
Expanding high occupancy vehicle lanes and services within Logan Airport	X	completed June, 1994
Connecting circumferential transit facilities and radial transit services	X	interim cross-town service started September, 1994; Urban Ring Study underway
Upgrade rail service to NY; Worcester & Springfield, MA.; Hartford, CT.; and Portland, ME.	X	in progress
Examine indexing of transit fares	X	ongoing, indexing issue discussed as part of annual fare review.
Feasibility of HOV Lanes on I-90 between I-93 and I-95	X	completed 1994
Urban Ring	X	ENF and MIS submitted July 2001. MEPA certificate issued October 2001. DEIR submitted in November 2004, MEPA certificate issued in May 2005. MBTA developing revised DEIR/DEIS.

Central Artery Mitigation Other Transit Projects in the ACO	2004 Transp. Plan	Status in 2005
Signal System Improvements on the Orange Line, Per Administrative Consent Order		Signal improvements to improve headways compete, but the MBTA has determined it is not cost effective to either purchase 18 new vehicles or to convert 18 vehicles. Commitment will be met with the purchase of a new fleet to be in place by 2015 that is large enough to accommodate improved headways.
Silver Line Phase 3, Per Administrative Consent Order	X	New Starts Application filed with FTA in August 2003, with a new finance plan and ridership assessment filed in August 2004. In June 2004 the MBTA began its environmental review of project. Received FTA recommended rating for New Starts in February 2005. Filed EIR in May 2005.

**APPENDIX A (cont.)
STATUS OF THE CENTRAL ARTERY
STATE IMPLEMENTATION PLAN TCMs**

Central Artery Mitigation Other Transit Projects in the ACO	2004 Transp. Plan	Status in 2005
Service to TF Green/Rhode Island		No date established in ACO. Planning underway by RIDOT.
Morton Street Station/Fairmont Line	X	Construction project advertised with Notice to Proceed (NTP) and construction to begin in late summer 2005.
Uphams Corner Station	X	Contract awarded in March 2005. NTP and construction began in April 2005
Four Corners Station	X	Design to be completed by 12/31/07
Orange Line Vehicles		Needs Assessment underway. MBTA to identify needs by Dec 2007 and to bring new vehicles on line by 2015.
260 ECD Buses		All 175 of the ECDs are in service. Delivery of 260 th bus by July 2006.
Priority Signalization		In development, no date established in ACO. Continued advancement with City of Boston on appropriate locations.
Silver Line Service to Logan Airport	X	Service to Logan began in June 2005.
Urban Ring DEIR		Completed DEIR filed with MEPA on 11/30/04. A joint revised DEIR/DEIS to be filed at future date.
Worcester Line Stations	X	Completed. Due by end of 2004 but completed in summer of 2002

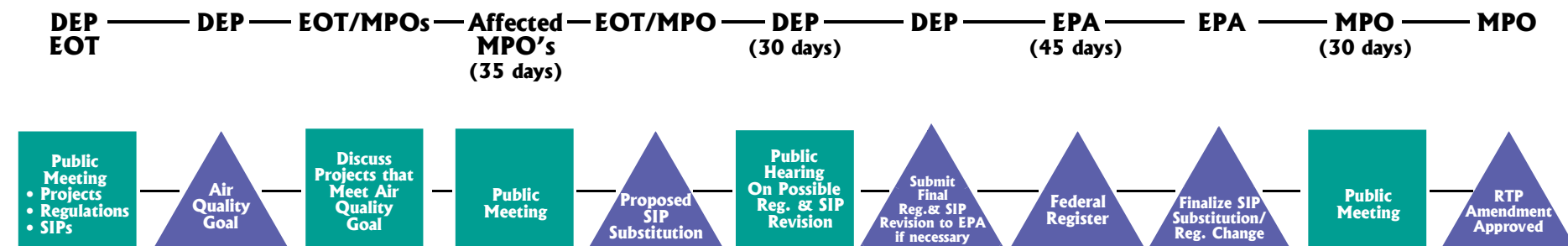
APPENDIX B

RE-EVALUATION PROCESS

FOR THREE REMAINING CENTRAL ARTERY/TUNNEL PROJECT

AIR QUALITY TRANSIT COMMITMENTS

The Public Process to Re-evaluate the Three Remaining Central Artery/Tunnel Project Air Quality Mitigation Transit Commitments and the Associated Regulatory Framework



Dec. 14, 2004

▲ = Milestones

Note: To the extent appropriate, public process will be conducted jointly.

APPENDIX C
CATEGORICALLY EXEMPT PROJECTS

Certain transportation projects eligible for federal funding have no impact on regional emissions. These are 'neutral' projects that, because of their nature, will not affect the outcome of regional emissions analyses and add no substance to those analyses. As a result, the United States Department of Transportation and the United States Environmental Protection Agency have agreed that such projects may be excluded from the regional emissions analyses required in order to determine conformity of TIPs and Plans. Projects eligible for this treatment are as follows:

Safety

- Railroad/highway crossing
- Pavement marking demonstration
- Hazard elimination program
- Safer off-system roads (non-federal-aid system)
- Emergency relief (23 U.S.C. 125)
- Also specific projects for:
 - intersection channelization projects
 - shoulder improvements
 - truck size and weight inspection stations
 - safety improvement program
 - intersection signalization projects
 - railroad/highway crossing warning devices
 - changes in vertical and horizontal alignment
 - increasing sight distance
 - guardrails, median barriers, crash cushions
 - pavement resurfacing and/or rehabilitation
 - widening narrow pavements or reconstructing bridges (less than one travel lane)
 - noise attenuation
 - fencing
 - skid treatments
 - safety roadside rest areas
 - other traffic control devices
 - truck climbing lanes
 - lighting improvements
 - adding medians

Mass Transit

Purchase of office, shop, and operating equipment for existing facilities
Purchase of operating equipment for vehicles (e.g. radios, fareboxes, lifts, etc.)
Construction or renovation of power, signal, and communications systems
Operating assistance
Rehabilitation of transit vehicles
Reconstruction or renovation of transit buildings and structures (e.g. rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures)
Construction of small passenger shelters and information kiosks
Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way
Noise attenuation
Purchase of support vehicles (e.g. autos, vans)
Purchase of new buses and rail cars to replace existing vehicles or for minor expansion of the fleet to provide new service
Construction of new bus and rail storage and maintenance facilities which meet the conditions for categorical exclusion specified in 23 CFR 771

Air Quality

Continuation of ride-sharing and van-pooling promotion activities at current levels
Bicycle projects
Pedestrian facilities

Other

Engineering to define elements of proposed action or alternatives to assess social, economic, and environmental effects
Advance land acquisitions as prescribed in 23 CFR 771
Acquisition of scenic easements
Plantings, landscaping, etc.
Sign Removal

APPENDIX D

OFF- MODEL EMISSION CALCULATIONS

Summary of Emissions from Off-Model Sources of VMT from Eastern Massachusetts

VOC Emissions								
	2007		2010		2015		2025	
	grams	tons	grams	tons	grams	tons	grams	tons
Buses	39,809	0.044	39,809	0.044	39,973	0.044	40,391	0.045
Commuter Rail	331,857	0.366	308,153	0.340	333,634	0.368	290,457	0.320
Commuter Boat	390,997	0.431	390,997	0.431	390,997	0.431	390,997	0.431
Pike Park & Ride	-13,298	-0.015	-9,548	-0.011	-5,603	-0.006	-3,706	-0.004
TOTAL	749,365	0.826	729,411	0.804	759,001	0.837	718,139	0.792

NOx Emissions								
	2007		2010		2015		2025	
	grams	tons	grams	tons	grams	tons	grams	tons
Buses	2,220,090	2.447	2,220,090	2.447	2,337,903	2.577	2,638,220	2.908
Commuter Rail	5,993,751	6.607	5,519,669	6.084	5,926,901	6.533	5,130,106	5.655
Commuter Boat	739,356	0.815	739,356	0.815	739,356	0.815	739,356	0.815
Pike Park & Ride	-11,423	-0.013	-8,044	-0.009	-4,360	-0.005	-2,267	-0.002
TOTAL	8,941,774	9.857	8,471,071	9.338	8,999,800	9.921	8,505,415	9.376